SARSEN STONES IN WESSEX PROJECT: DATA TRANSCRIPTION STRATEGY, METHODOLOGY AND PROTOCOLS
for the creation of *WessexSarsens.xlsx*

Katy A. Whitaker, December 2017 (updated January 2019, archived May 2020)

k.a.whitaker@pgr.reading.ac.uk | 07769 712799 | @artefactual_KW
ORCID https://orcid.org/0000-0002-9391-8181

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Summary

This document lays out decisions that were made in preparation for, and during, the transcription of record sheets from the Society of Antiquaries' *Sarsen Stones in Wessex* survey (archive collection MS953, Society of Antiquaries of London). It comprises the paradata for the transcription process resulting in the creation of the archived file *WessexSarsens.xlsx.*

It includes a brief introduction to that project and to the nature of the individual archive items that have been transcribed; general problems that applied to all of the archive records; and the methodology adopted to digitise the data by manual transcription.

This document is intended to be read in conjunction with the transcribed dataset with its ADS-compliant metadata table and alongside the ISAD(G)-compliant collection description, *WessexSarsensArchive.pdf.*

The Sarsen Stones in Wessex survey

The *Sarsen Stones in Wessex* survey was intended to be the pilot project of a more wide-ranging *Evolution of the Landscape* project, led by Fellows of the Society of Antiquaries of London (SAL). The purpose of the *Evolution of the Landscape* project as first sketched out was "to investigate the origins of the first organised landscape in Britain" (Bowen and Cunliffe, n.d., unpaginated memo). As the research proposal developed during 1972, the emphasis fell on "the emerging possibility of recovering the earliest patterns of regular land allotment". The Wessex region had been identified as one of two possible study areas for the *Evolution of the Landscape* project because of its extensive, well-preserved, archaeological evidence for prehistoric land-use, including earthwork field systems with stratigraphic relationships. In addition, research already underway in the counties could support the essentially low budget, collaborative, approach espoused by the project's proposers (Cunliffe et al., 1972).

As a pilot for what was intended to be the far broader landscape archaeology study, the *Sarsen Stones in Wessex* survey was planned as a detailed examination of one particular aspect of the landscape over the Wessex area. Beginning following a meeting held at Burlington House on 23 February 1974 (Society of Antiquaries of London, 1974b), the main objective was to record the location and characteristics of sarsens across Wiltshire, Dorset, and Hampshire (UK). This would enable, in theory, the mapping of sarsen distribution against evidence for neolithic and bronze age agriculture, alongside an assessment of the periods in which sarsens had been put to different uses. The overall aim was to understand what constraints these boulders had presented to the first farmers, and how they had been exploited as a mineral resource available in the (largely) chalk landscape of the three counties (Bowen and Smith, 1977).

An alternative proposal, discussed at the inaugural meeting, had been to study in detail all aspects of the historic and prehistoric landscape in one location of perhaps 40 square miles; but surveying the sarsen distribution presented the chance to evaluate the effectiveness of a volunteer workforce 'crowd-sourcing' data over the

whole study area. This approach was espoused by Collin Bowen (Society of Antiquaries of London, 1974a), perhaps influenced by his experience of the long duration of investigation, by a necessarily small staff team, for the RCHME Dorset Inventory volumes on which he had worked for nearly 25 years.

It should be noted that there is no evidence in the project archive (MS953, Society of Antiquaries of London library) or in related papers kept in the Historic England Archive (SOA/03) that the project organisers had reviewed, in advance, the geological literature to establish the overall incidence of sarsen stone and other silcretes in southern Britain. Although in the first full iteration of the project proposal both Wessex and the Somerset Levels had been identified as suitable study areas in which to unpick the evolution of the landscape, by the time a pilot project was mooted Somerset had been dropped from the plans (Society of Antiquaries of London, n.d.). The choice of Wiltshire, Dorset, and Hampshire (but excluding the Isle of Wight) was driven not by the presence of sarsen and its use in prehistoric contexts (which reason might have encouraged the inclusion of other counties such as Kent, for example), but specifically because of the quality of the archaeological record in those three counties for thinking about prehistoric agriculture.

The recognition of this potential had been growing during the twentieth-century, in particular in the mind of the project's chief protagonist, Collin Bowen (Bowen, 1961), much of whose working life was focused on Dorset and who lived in Salisbury (Wiltshire). In addition, Bowen's co-convener Barry Cunliffe had started excavating at Danebury hill-fort (Hampshire), a project cited in the *Evolution of the Landscape* proposal as one of a number of active excavations in Wessex that might reasonably be expected to contribute relevant research results. Berkshire never seems to have been considered for inclusion, although in 1975 Leslie Grinsell wished that the sarsen survey be extended there, and to the Isle of Wight (Society of Antiquaries of London, 1975). The choice of three Wessex counties was for archaeological reasons, and perhaps also because of the particular familiarity with, and interests of, the organisers working in those areas. A sarsen stone survey was in effect a standalone project, but it was never meant to be one: the *Sarsen Stones in Wessex* survey was always intended to illuminate landscape change and in particular the development of farming.

Driven largely by Collin Bowen FSA, and reported on by him with Isobel Smith FSA (Bowen and Smith, 1977), the *Sarsen Stones in Wessex* fieldwork was carried out by volunteers from 1974. Interested parties were provided with blank recording forms, known as “Tally Cards”, and brief instructions in the *Society of Antiquaries Evolution of the Landscape Project, Wessex. Information Sheet No.1* (Bowen and Smith, 1974). The volunteers then gathered information about silcretes – both sarsens and puddingstones – in areas of their choosing. County co-ordinators collected the completed forms and monitored overall coverage in their county. The data were on the whole gathered during field visits: but bibliographic references, personal communications, and other sources feature in the recording forms, providing records commonly for stones thought to have been sarsens but since lost (such as boundary markers, and stones mentioned in Anglo-Saxon charters). Not all the data were submitted on the project’s “Tally Cards”: homemade versions, postcards, and other documents were used not only by volunteers and the co-ordinators, but also by Bowen and Smith themselves (these are discussed in more detail below).

Initial results were reviewed in May 1975 at the *Sarsen Symposium* held in London: the fieldwork in Dorset was by then largely finished, whilst parts of Wiltshire and Hampshire were yet to be covered (Society of Antiquaries of London, 1975). By 1977 the organisers decided that enough data had been collected to warrant publication, resulting in a paper in the Society’s journal (Bowen and Smith, 1977) and the deposit of archive material with the Society’s library. This archive includes original “Tally Cards” and other records collected by the project volunteers; some of the transparencies and photographs that they took when making site visits; annotated maps; and publication archive such as the drawings, photographs, and small-scale mapping prepared for the paper.

Nevertheless, data collection continued in Hampshire. That county’s records were returned to the co-ordinator, Reverend Peter Gallup, who continued to add information into the 1980s. He published a series of short reports in the Hampshire Field Club newsletter (including Gallup, 1975, 1977, 1994). The Hampshire archive material was not deposited in the Society of Antiquaries Library until 1993, transferred from the RCHME Salisbury Office by Mhairi Handley (see HSS01

Hampshire Sarsen Survey, Historic England Archive). The Dorset and Wiltshire records had been microfiched by RCHME, but although the Hampshire material had not been available for this copying process Bruce Eagles of RCHME ensured that a duplicate dataset was provided to Hampshire County Council. That is available in the county archive (reference 113M93) with data also copied to the planning department.

Brief timeline of the Evolution of the Landscape project and Sarsen Stones in Wessex survey

DATE	EVENT/DOCUMENT and archive source
Undated	*Proposal for a scheme to investigate the origins of the first organised landscape in Britain*, authored by HC Bowen and Professor Cunliffe. **MS953/1/1, Society of Antiquaries**
25 April 1972	*Proposal for sponsorship of a scheme of research by The Society of Antiquaries of London*, submitted by Professor Cunliffe, Dr Coles, and HC Bowen: a 6-page document sent by Bowen to FH Thompson, Assistant Secretary (SAL). **MS953/1/1, Society of Antiquaries**
9 August 1972	Memo to be sent by FH Thompson, Assistant Secretary (SAL) to attendees, forming a sub-committee of the SAL Research Committee "to consider the research project on the organisation of the landscape". **MS953/1/1, Society of Antiquaries**
March 1973	Bowen and Cunliffe (1973): a short paper in the *Antiquaries Journal* introducing two research projects sponsored by SAL; the Evolution of the Landscape project; and archaeological investigation of British churches.
20 December 1973	*Sarsens*: a memo from HC Bowen to Professor Atkinson, DJ Bonney, Dr R Bradley, GA Kellaway, and Dr IF Smith, proposing a project on sarsen stones in Hampshire, Wiltshire, and Dorset **SOA/03 File 18, Historic England Archive**
February 1974	*Society of Antiquaries Evolution of the Landscape Project, Wessex. Information Sheet No.1*: a sheet for distribution to volunteers to introduce the project, written by HC Bowen and IF Smith. **SOA/03 File 15, Historic England Archive**
23 February 1974	*Society of Antiquaries of London, Evolution of the Landscape, Wessex Pilot Scheme, News Sheet No.1*: the notes from the inaugural meeting of the Evolution of the Landscape project, including the proposal by HC Bowen to focus on sarsens in Wessex, the circulation of *Information Sheet No.1* and the first version of the sarsen recording form ("Tally Card"), with notes on other relevant projects and resources. **SOA/03 File 1, Historic England Archive**

10 May 1975	*Sarsen Symposium. Evolution of the Landscape Project: News Sheet No.2*: the notes from the Sarsen Symposium held at Burlington House, reporting on sarsen survey progress and issues/points of interest arising from the work completed by the date of the meeting. Outcomes included: archive material for three counties as the basis of a national sarsen record; a call to excavate sarsens; an exhibition of materials; a review of survey results; geological debate; folklore discussion; a proposal to move on to a parish boundary survey. **SOA/03 File 3, Historic England Archive**
May 1975	The Parish Boundary survey began in Dorset as the next volunteer-driven piece of work for the *Evolution of the Landscape* project.
30 November 1976	*Meeting with Dr Andrew Goudie and Mr Michael Summerfield at School of Geography, Oxford*: HC Bowen met with Goudie and Summerfield to discussion sarsen distributions in Britain and petrology (typescript notes). **SOA/03 File 6, Historic England Archive**
10 March 1977	*Wessex Linear Ditches*: HC Bowen provided a report on this sub-project of the *Evolution of the Landscape* project to the SAL Research Committee, including Parish Boundary survey progress. **MS953/1/1, Society of Antiquaries**
1977	Bowen and Smith (1977): Collin Bowen and Isobel Smith's report on the *Sarsen Stones of Wessex* project, published in the *Antiquaries Journal*.
29 November 1977	*Wessex Linear Ditches*: a memo from John Evans to FH Thompson, Assistant Secretary (SAL), describing outcomes of fieldwork and an account of the budget. **MS953/1/1, Society of Antiquaries**
before 28 February 1978	There had been a telephone conversation between HC Bowen and FH Thompson concerning the *Evolution of the Landscape* project. **MS953/1/1, Society of Antiquaries**
28 February 1978	Letter from HC Bowen to FH Thompson, requesting financial support for John Bailey (*Parish Boundaries project*, Dorset) and John Evans (*Wessex Linear Ditches project*), under the auspices of the *Evolution of the Landscape* project. **MS953/1/1, Society of Antiquaries**

10 March 1978	Letter from HF Thompson to HC Bowen and Barry Cunliffe communicating the results of the SAL Research Committee meeting held on 9 March 1978: expressing concern about the *Evolution of the Landscape* project; approving funding for John Bailey but not John Evans; and requesting clarity on the *Evolution of the Landscape* project. **MS953/1/1, Society of Antiquaries**
20 March 1978	Letter from John Bailey to FH Thompson, summarising the *Parish Boundary* project progress and outcomes. **MS953/1/1, Society of Antiquaries**
5 April 1978	Letter from HC Bowen to FH Thompson, summarising his views on the *Evolution of the Landscape* project. **MS953/1/1, Society of Antiquaries**
29 October 1981	Letter from John Bailey to FH Thompson, closing down the *Parish Boundary* survey. **MS953/1/1, Society of Antiquaries**
4 December 1981	Letter from FH Thompson to HC Bowen enquiring about methodology to analyse the *Parish Boundary* project data. **MS953/1/1, Society of Antiquaries**
30 December 1981	Letter from HC Bowen to FH Thompson recommending a short note be published in the *Antiquaries Journal* about the *Parish Boundary* survey. **MS953/1/1, Society of Antiquaries**
11 April 1983	Letter from John Bailey to FH Thompson including a two-page report on the Parish Boundary project and confirming that the dataset was archived locally in Dorset. **MS953/1/1, Society of Antiquaries**
1993	Bruce Eagles (RCHME) deposited a duplicate of the Hampshire archive material from the Sarsen Stones of Wessex project with Hampshire County Council, whilst his colleague Mhairi Handley returned the original material to the Society of Antiquaries. **HSS01 Hampshire Sarsen Survey, Historic England Archive**
1994	Gallup (1994) “The Sarsen Stone Survey” *Hampshire Field Club Newsletter*

Table 1 Key dates and archived documents, or published papers, for the Society of Antiquaries’ *Evolution of the Landscape* project.

Aim and objectives

AIM

To digitise data captured on paper record sheets by volunteers during the *Sarsen Stones in Wessex* survey, creating a digital dataset that is suitable for archiving and sharing through Open Access means (subject to any restrictions required by the data owner, the Society of Antiquaries), and which can form the basis of a future analytical dataset capable of being used in different contexts (for example, queried in a GIS environment or using a programming language such as R).

OBJECTIVE 1

Convert analogue, handwritten, data into digital data.

OBJECTIVE 2

Ensure that all datasets created are in an Archaeology Data Service (ADS) preferred file format with ADS-compliant metadata (http://www.archaeologydataservice.ac.uk/advice/guidelinesForDepositors.xhtml), and aligned with Research Council UK data management requirements for RCUK-funded research, http://www.rcuk.ac.uk/research/datapolicy/)

OBJECTIVE 3

Retain key identification data such that every digitised record can be mapped back to its originating analogue archive item in the *Sarsen Stones in Wessex* project archive (MS 953).

OBJECTIVE 4

Capture all of the information recorded by the project volunteers in order to reduce the handling demand on the original archive material.

Strategy

The data source: *Sarsen Stones in Wessex* "Tally Cards"

The item-level records for sarsens identified by the project's volunteers are "Tally Cards". These recording sheets contain the data collected by volunteers, predominantly during the 1970s. Although they are not catalogued to item-level within collection MS 953, those for Hampshire and Dorset are arranged by parish or place-name and have individual reference numbers, and in only a few instances has the same reference number been used more than once. The records for Wiltshire are organised differently, by Ordnance Survey 1:25,000 map sheet: hence groups of records are identified by the map sheet name and rarely by a unique identifier. The "Tally Cards" were drawn up specifically for the project, but the general concept and format of the paper field record, and the name, are likely to have been drawn from the RCHME practice of "Tally Cards" (described by Collin Bowen (1961, vii), Appendix B and C of *Ancient Fields*).

Each "Tally Card" records information about either a single sarsen, or a group of sarsens that for some reason were deemed by the recording volunteer to have an association. Examples of 'groups' include prehistoric monuments and sarsens in building fabric (commonly churches), but also small collections of sarsens used on verges or in garden features, for example. The few examples in the Hampshire and Dorset datasets in which one reference number was used for multiple records tend to be in areas with dense sarsen survivals, such as Portesham village (Dorset), where reference PRT6 was used to describe sarsens on the High Street, in buildings alongside and adjacent to the High Street, and in yards and gardens in the environs. Occasionally records were made for stones no longer extant, but thought to have been sarsens. Whilst a number of these examples are for stones recorded in Anglo-Saxon charters or other early documents recording boundaries, some volunteers speculated about the nature of monuments since replaced with more recent structures, such as Winchester's "Plague Stone" (MS953/3/2/1/W17f). This original data from the *Sarsen Stones in Wessex* project "Tally Cards" is required for digitisation.

None of the other archive material, such as committee meeting minutes, letters, notes, and so on, have been digitised: these remain in paper formats archived by the Society of Antiquaries including material in collections other than MS 953 (as do some duplicate and also original archive material, held by other repositories). Neither have the project's paper maps been digitised. These are in very poor condition and much of their information has been lost (see *WessexSarsensArchive.pdf*).

County	Tally Card: sarsens	Revised 5/74	Tally Card: sarsen JB	Handmade	Postcards	Other format	TOTAL
Hampshire	6	300	0	5	0	0	**311**
Dorset	41	5	86	0	0	1	**133**
Wiltshire	1	26	0	62	132	214	**435**
TOTAL	**48**	**331**	**86**	**67**	**132**	**215**	**879**

Table 2 Names given to the different formats of record sheet ("Tally Card") used by volunteers in the *Sarsen Stones in Wessex* survey, with frequency by type and county.

The project's "Tally Cards" come in a number of different formats (Table 2, Fig.1). There seems to have been an original version, called here "Tally Card: sarsens" after the title found towards the top left corner of each sheet. This recording form, on one side of paper, included eight broad categories of data collection. Each category was in fact comprised of a number of more-or-less discrete items of information, recorded by the volunteers in a semi-structured way without controlled language or mandatory fields. Data could be written anywhere on the sheet, with space for sketches and additional information on the reverse.

The "Tally Card: sarsen" sheet was replaced early on by a sheet called here "revised 5/74" (an additional title component added to the top left of the sheets). A substantial number of the records in the project archive are on this version of the sheet. It was a slightly more extensive recording form in which the broad recording categories had been broken down somewhat. Nevertheless, each category, apart from a few simple ones such as *county*, *parish*, *NGR*, still included information for a number of fields

together. Neither did this sheet introduce controlled language nor mandatory data capture: and it was still on one page with small spaces to write in answers against the required headings.

Accordingly, information tended to be scattered over the page by the volunteers, including on the reverse or on continuation sheets. The problem of space on the sheets was raised on 16 June 1974 by John Bailey, the project's co-ordinator for Dorset, who wrote to Collin Bowen,

"As they are set out they leave no room for tidy entries relating to the different questions. Can I devise my own (using the exact wording of the original) but improving the spacing?"

In his reply of 20 June 1974, Bowen agreed. Bailey made a version with more space and used dotted lines to encourage volunteers to write information more consistently in the same location on the page, or even to use circles or strike-through to give specific replies to some of the questions. This version of the "Tally Card" is here called "tallycard:sarsensJB". As well as providing space in which to write answers more clearly against the required categories and headings, Bailey's version had the effect of controlling, to some extent, some of the possible answers. For example, under the heading 'Situation', seven options were given not as loose examples (as in the earlier record sheet) but as terms from which to select an answer, alongside a free-text "any other note" space.

None of these "Tally Cards" were supplied as copies duplicated from a Master document: each blank was typed to supply fresh sheets to volunteers. There are therefore some inconsistencies from sheet to sheet, with categories and questions missed out or placed in a slightly different location on the page. Occasionally the volunteer completing the sheet noticed a missing question and wrote it in themselves: at other times, not. Other versions of the recording forms include homemade sheets, on which the volunteer wrote out the required categories.

Postcards carrying small items of collected data, such as relevant bibliographic references, but no information for any of the other categories, are common

especially in the Wiltshire dataset. Finally, “handmade” versions of the sheets (in which the headings were manually copied from typescript sheets onto other paper format), and other pieces of notepaper (both typed and manuscript) were collected. Needless to say, there is considerable variation in the visual quality of each record sheet – that is, the handwriting, ink, legibility, placement of text, and so on – as well as in the quality of the recorded content.

Available methodologies

Digitising this kind of archive material, beyond simply scanning sheets to create image files that can be saved and shared, presents such wide-ranging problems that these sorts of collections are rarely prioritised by Archive managers (Mike Evans pers.comm. 2017).[1] Handwritten documents are thus commonly under-utilised archive sources (Kearney and Wallis, 2015). Two general methodological approaches are available. The first is manual transcription of data from record sheets into a digital format such as a document file, spreadsheet, or database. The second is to scan pages (characterised as *off-line* handwriting, that is, having an analogue original source), process the resulting images using Optical Character Recognition (OCR) or Handwritten Text Recognition (HTR), ultimately creating a searchable file (see, for example, documents and books made available and searchable digitally through the Internet Archive, https://archive.org). An extension of HTR is to then apply an automated process to files, to identify and allocate discrete data packets into the fields of a spreadsheet or database.

OCR can be most readily applied to printed matter, converting an image of printed text into an editable text file. HTR is another form of pattern recognition using algorithms to convert the text image: as well as data-acquisition and pre-processing it requires *segmentation* (cropping to paragraphs, lines of text, or the individual words within) and *recognition* (feature extraction, and classification; that is, de-coding the visual features that match pre-learned forms of character shapes)

[1] This digitisation project was planned and undertaken before the Transkribus project (https://transkribus.eu/Transkribus/) platform for digital transcription of handwritten material became available. It would be highly instructive to trial transcription of *Sarsen Stones in Wessex* survey ‘Tally Cards’ with this new Handwritten Text Recognition system, given the records’ variability and heterogeneity.

(Thorvaldsen et al., 2015, 10). Automatic processing of handwriting is fully reviewed by Plamondon and Srihari (2000), whilst a number of recent reviews deal with particular technological and computational approaches to HTR such as word-spotting in handwritten documents (Ahmed et al., 2017); evolutionary computing (Katiyar and Mehfuz, 2012); document image segmentation (Eskenazi et al., 2017); script identification (Sahare and Dhok, 2017). Despite recent research advances, off-line systems of handwriting recognition have limited accuracy for complex documents, and applications are more commonly restricted to texts with higher levels of prescription such as postal codes (Plamondon and Srihari, 2000). Transcription projects can of course be multi-modal, drawing on a mix of computerised and manually-completed tasks.

For a number of reasons, manual transcription was chosen to digitise the *Sarsen Stones in Wessex* project records. Reasons for this choice are outlined below.

Digitisation projects

Large-scale archive digitisation projects resulting in both digital images and searchable data have been possible for a number of years: examples such as the UK census records, maintained by The National Archives (2017) but made available digitally with commercial partners whose staff or contractors have transcribed the census entries, are widely familiar and well-used by, amongst others, family historians. Not only can images of original census pages be viewed online, but searches can be constructed through a public interface to locate individual census entries.

This 'searchability' is an essential element of the digitisation. Exercises that result in scanned images alone can at least make those images more widely available via the internet, but otherwise are extremely limited. An example is the scans of a set of record sheets compiled by Mike Pitts, recording morphological data and other characteristics of *c*2,000 neolithic stone axe heads and made available through the Implement Petrology Group website (http://implementpetrology.org/?page_id=3997). Whilst it is useful for researchers to be able to view these sheets without travelling to the Historic England Archive in Swindon (UK) where the originals are preserved, the

online record does not include Pitts' coding or other metadata. This must therefore be accessed separately, from a pay-walled article (Pitts, 1996), in order to interpret the coding and understand the record for each axe head. The records are not searchable in any way online from the scanned images: master lists on the website provide a key to direct the researcher to each image file.

Projects analogous to the *Sarsen Stones in Wessex* survey, in which volunteer-completed, handwritten, record sheets had later been digitised to create searchable datasets, were sought to investigate possible approaches to transforming the "Tally Cards" into data that could be queried in different ways.

Defence of Britain Project

The Defence of Britain Project (DoB), led by the Council for British Archaeology from 1995, was a volunteer survey and recording project collecting data about surviving Second World War features in Britain (Archaeology Data Service, 2017). The project resulted in a large set of completed paper record sheets, accompanied by sketches and photographs, that are now archived in the Historic England Archive (DEB01), the archive of the Royal Commission in the Ancient and Historical Monuments of Wales, and of Historic Environment Scotland. Data from the sheets were transcribed by a small staff team based at the Imperial War Museum, Duxford. Like the *Sarsen Stones in Wessex* survey sheets, the DoB records are highly variable (Fig. 2) largely because of the limited training provided to volunteers. This variability extends to both the visual quality of each record (hand-writing, use of the recording sheet, inks, sketches and doodles, and so on) and the quality of the content (for example, errors in grid-referencing, more or less detailed descriptions, incorrect identifications of monument types).

It is this variability that required human intervention to digitise the records. For example, *Site Type* and *Place* were anticipated to be future researchers' likely main search criteria. The identification of *Site Type* by volunteers had been variable and, in some instances, unreliable. Without the introduction of controlled language, the digital records that would be sent to local authority Historic Environment Records as well as presented online as a national dataset, would not be searchable by *Site*

Type. To create the required consistency, *Site Type* was therefore indexed by the staff team from the nationally-accepted Historic England *Thesaurus of Monuments*. Accordingly, decisions had to be made about how to apply monument thesaurus terms from the controlled language list to the structures recorded by the volunteers (Archaeology Data Service, 2017). The transcription was therefore an iterative process, informed by the specialist knowledge and professional judgement of the staff team completing the work (Redfern pers.comm. 2017). Decisions had to be made on a record-by-record basis, interpreting the volunteers' descriptions of the sites that had been recorded to select the correct thesaurus term: something that a computer could not be trained to do.

War Memorials Register

The War Memorials Register, formerly known as the National Inventory of War Memorials, is maintained by the Imperial War Museum (IWM) (http://www.iwm.org.uk/corporate/projects-and-partnerships/war-memorials-register). Since 1989, volunteers have collected information about war memorials across the UK. The variation in war memorials is vast: as well as freestanding monuments on village and town High Streets and in churchyards, for example, they include an eclectic range of plaques and tablets, church furniture, buildings, parks and gardens, hospital wings and hospital beds, veterans' housing, and all manner of practical public and ecclesiastical amenities. There are thought to be *c*100,000 war memorials in the UK, of which *c*70,000 are recorded in the Register.

With such a wide geographical remit and having run for so many years, the project generated a large paper archive of volunteers' records, including photographs and ancillary material such as booklets, pamphlets, information about commemorated service personnel, dedication ceremony service sheets, and so on. The IWM needed to make this data publicly available, beyond welcoming visiting researchers to the museum's premises in London. The following account of how this was accomplished, and current practices, is based on information from Catherine Long, IWM (Long pers.comm. 2017).

At first an attempt was made to scan paperwork and apply OCR software to create digital documents: this “failed miserably” because so many different methods and formats had been used to record war memorials over such a long period of time. There are three variants of the memorial recording form, and over the years volunteers have also sent in notes on a variety of media. The next project involved mass scanning, and manual transcription of data from the resulting digital images by an overseas commercial provider. This had limited success and was cut short: again, the different types of record were problematical, and the transcribers’ unfamiliarity with the data caused problems. For example, when lists of personal names commemorated on war memorial surfaces were transcribed from the volunteers’ records, similar text from war memorial inscriptions and descriptions had been erroneously included: such as ‘A. Wreath’ interpreted as a personal name, from ‘…with a wreath carved on the front face of the plinth…’.

At the present time, digital records are created by manual transcription, with volunteers working both in the museum (using original paperwork) and at home (using scanned images). Decisions can be made about what data to transcribe, and which database fields to add this to. The quality of the data in the original records is deemed not good enough to relinquish control and use automated data capture processes: “the real difficulty is extracting the actual data required, and mapping it to the available fields” (Long, 2017 pers.comm.). Manual transcription also allows certain general principles to be applied to the process. These include, for example, not copying across data that are known to be wrong; and not digitising any irrelevant material (for example, the general history of the church at which a war memorial is located). In this way, greater consistency can be maintained in the digital database.

National Record of Industrial Monuments

The National Record of Industrial Monuments (NRIM) was created in the early 1960s when the Council for British Archaeology (CBA) engaged its members in a national industrial archaeology survey. Volunteers sent their completed record cards to either the CBA, or directly to Rex Wailes who was the Ministry of Works’ industrial archaeology consultant. By 1965 there was a pressing need to classify the data, copy the cards, and return the originals to the volunteers. The Bristol College of

Science and Technology (which became the Centre for the Study of History of Technology at Bath University of Technology, now the University of Bath) took on this co-ordinating role. Some 8,000 record cards were completed between 1963 and 1981: the policy was to return the originals to the volunteers whilst copies were kept by the CBA, RCHME, and the University. At the University, the cards were allocated unique reference numbers, and grouped and classified depending on the nature of the recorded feature(s) (Buchanan, 1969, 1971).

In 2011, the Historic England (then English Heritage) Archive started a project to capture data from the record cards, making new records (or supplementing existing records) in the National Record of the Historic Environment (NRHE) dataset. This involved creating both spatial data, to depict where possible the extent of the industrial feature(s) described on each card, and also textual information from the cards mapped to the existing fields of the digital monument recording system. A member of staff interpreted the record cards, with reference to existing NRHE records and to data from other sources such as published works. Each card was compared with the NRHE records to decide whether or not a new record was required, or if an existing record could be supplemented (Guiden, 2011).

This exercise also required human intervention, as described in the end-of-project report from which this summary is taken (Fitz-Gerald, 2012). Some sites recorded by the project volunteers were already recorded in the NRHE. In these instances, data might augment the record but the comparison had to be made first before deciding how to proceed. Other records did not qualify as monuments: volunteers had recorded features such as abandoned items of machinery in the countryside. These had to be weeded out of the exercise. Some records were so poor that it was impossible to understand what had been recorded, or where the feature was located, in order to verify the record. That was especially true of spatial data and the poor quality of national grid-reference recording, a problem that had been acknowledged by the University team at an early stage (Buchanan, 1971, 25). Finally, whilst the cards followed a standard format, both the visual quality and the quality of the recorded content varied considerably and a number of volunteers submitted additional information in non-standard formats (Buchanan, 1969, 12-13, 1971, 27). The cards therefore were not amenable to scanning, OCR/HTR, and automated

capture of data into database fields, because of, for example, such a variety of handwriting and pen/ink weights, and the different ways that volunteers used the recording boxes in the cards (Fig. 3). This is despite the cards being more formally laid out than the *Sarsen Stones in Wessex* project record sheets.

In total, 1,995 new records were made and 1,607 existing records were amended, with reference to 6,097 cards. This illustrates an additional complication of the record cards. Some cards contained data that was transformed into more than one NRHE record, whilst other NHRE records were compiled from a number of separate cards. That each card did not map easily to one NRHE record was another factor requiring human intervention to complete the task.

National Bronze Implements Index

Although not compiled by volunteers working in the field, the British Museum's National Bronze Implements Index project has a number of similarities with the projects discussed above and the *Sarsen Stones in Wessex* survey records, and was therefore explored. The index is a large card catalogue recording textual information and sketches of British prehistoric metal artefacts. Arranged by drawers, the information recorded on the cards was recognised as an extremely important, but under-used, resource, only accessible at the British Museum until digitised through the *Micropasts* scheme (Bonnachi et al., 2015) (see for example http://crowdsourced.micropasts.org/project/flangedAxesA1/ to see examples of card images).

Despite the relatively regular layout of the index cards (like the NRIM cards), the decision was again made to manually transcribe the handwritten data: the *Micropasts* online platform has, however, been designed to crowd-source this activity from volunteers working remotely with reference to scanned images of the index cards. A number of factors contributed to this decision. The Index is *c*100 years old and has been added to and reclassified during that time, leading to a certain degree of variability in the records. The hand-writing, along with multiple annotations, small changes to the card layout, and different uses by the museum recorders over time, present problems for OCR. Human operation was therefore required to digitise the

data, with people interpreting the cards and making decisions about how to transfer information to the structured fields made available on the *Micropasts* public interface. Each index card is transcribed more than once by different volunteers, so that comparisons can be made to resolve one final, acceptable, version of the data: until recently these duplicate datasets were compared manually by staff for every record, but some coding (using the programming language R) now makes it possible to compare line-by-line differences automatically, considerably reducing this laborious process (Wexler, 2017 pers.comm.).

Zooniverse

Created by a collaboration of UK and US organisations and managed by the Citizen Science Alliance, *Zooniverse*, like the British Museum's *Micropasts*, is a citizen-science platform (https://www.zooniverse.org). It was consulted because, amongst a wide range of projects, it allows archive-holding organisations to crowd-source data capture from older paper-based records. These records were, on the whole, created by official or scientific bodies, private individuals, or, in the case of ancient texts, authors of some of the earliest surviving documents in human history. Remote volunteers are encouraged to participate and at the time of writing (10 September 2017) there are 74 active projects online. Examples where volunteers are required to transcribed text and/or numeric data include:

Scribes of the Cairo Geniza
https://www.zooniverse.org/projects/judaicadh/scribes-of-the-cairo-geniza
Categorising c350,000 fragments of scrolls according to the script in which the text is written, prior to the future transcription of each surviving manuscript.

Weather Rescue
https://www.zooniverse.org/projects/edh/weather-rescue
Transcribing c2million textual and numerical data points from 3,500 printed record sheets of the Ben Nevis weather observatory (1883-1904).

Mutual Muses
https://www.zooniverse.org/projects/melissaagill/mutual-muses

Transcribing the manuscript correspondence of Lawrence Alloway and Sylvia Sleigh.

The range of *Zooniverse* projects enables a comparison to be made between manuscript and printed document digitisation. On the face of it, printed matter should be susceptible to automated digitisation through the application of OCR processes, yet there are *Zooniverse* projects working with such material that are nevertheless drawing on human intervention to manually transcribe the desired information: why is this? The *Weather Rescue* team, asking volunteers to transcribe numerals from printed pages, addresses this question head-on,

"We have tried some simple OCR and it has not worked well. Some of the images are quite distorted and humans are much better at reading those. We are also very concerned about accuracy and could not be confident that the OCR would be 100% accurate. We have successfully used OCR on some of the other details contained in the logbooks, but the weather observations need to be entered manually. If there are any OCR experts who would like to help us then we would be delighted - there are millions of other historical weather observations that need rescuing from all corners of the planet!" (Royal Meteorological Society, 2017b)[2]

The Getty Research Institute Special Collections Team managing the *Mutual Muses* project, which involves the transcription of the manuscript letters between critic Lawrence Alloway and artist Sylvia Sleigh that include sketches and mixed media, comment on the unsuitability of currently-available OCR processes for their material,

"At the moment, none of the OCR technologies available to us produce useful results from handwritten materials. The small number of typewritten documents in the archive also present difficulties for OCR because of their quality and the presence of handwritten annotations." (The Getty Research Institute, 2017b)

Illustrating some of the difficulties of working with manuscript material, the *Scribes of the Cairo Geniza* project asks its volunteers not (yet) to transcribe text from scroll

[2] New on Zooniverse in 2020, the *Rainfall Rescue* project is now requesting help from volunteers to manually transcribe handwritten records (https://www.zooniverse.org/projects/edh/rainfall-rescue/about/research)

fragments, but to recognise and categorise those fragments into Hebrew and Arabic script groups, in order to prepare for future transcription (University of Pennsylvania Libraries, 2017b). This activity is analogous to the sorting processes of archive projects described above, such as the *War Memorials Register* that requires the selection of appropriate curated items from which data are to be sourced; and the *National Record of Industrial Monuments* and *Defence of Britain Project* in which volunteers' records had to be compared with existing datasets and controlled language sets before data could be digitised.

Discussion

> "Even the neatest, most consistent handwriting resists OCR"
>
> (Kearney and Wallis, 2015)

Whilst this does not represent an exhaustive search of digitisation projects transforming manuscript archive material into digital data, the overwhelming message from conversations with archivists working with historic material in some of our national institutions is that current text recognition systems do not afford effective means to digitise handwritten material without considerable manual intervention at different stages in the process. Indeed, it has been difficult to find archive projects in which handwritten, highly variable, records have been digitised using solely computerised processes. Many recent projects to digitise historic data, from both handwritten and printed sources, have chosen to invest in manual transcription by staff and/or volunteers – such as the purpose-built *Micropasts* platform that enables organisations to present records for transcription by 'virtual volunteers' operating online.

It is notable that OCR, which for processing digitised printed text is "scientifically mature" (Thorvaldsen et al., 2015, 1), is mentioned by the archivists managing the projects described above (such as *Mutual Muses*, *Weather Rescue*, and the War Memorials Register) whereas HTR is not. Whilst this may be because of a conflation of these technologies in the minds of the project managers, HTR is nevertheless a younger data science tool which in the past ten years has at best been able to

provide first draft transcriptions which must then be edited manually (Granell and Martinez-Hinarejos, 2017, 409).[3]

The projects described above share two principal characteristics: a great variety in the visual quality of the pages or index cards carrying desirable data, and variation in the quality of the content. The visual quality of volunteer-submitted material in the War Memorials Register caused problems during attempts to scan and apply OCR software to the variants of recording sheets and mixed media in the archive. This problem was also noted in the Defence of Britain project archive material, although in that instance an approach using OCR was not even considered. Although the layout of the index cards of both the National Record of Industrial Monuments and the Bronze Age Implements Index encouraged more regularised completion, both collections exhibit a similar visual variation with different scripts, pen/ink weights, occasional sketches, and other features requiring manual data transcription. Even typescript archive material, in the current *Weather Rescue* and *Mutual Muses* projects that might have been able to use the most up-to-date OCR/HTR software to create at least first digital drafts, has been subject to manual transcription because of problems caused by visual variability.

Whilst the visual quality of the archive material causes technical problems for digitisation, the variation in content quality is principally an issue for the correct allocation of reliable data to fields in a spreadsheet or database. Thus, both the Defence of Britain Project and the War Memorials Register required human intervention to select appropriate data from volunteers' records for the fields of their respective project databases. It is noteworthy that in both these examples, specialist knowledge had to be brought to bear on the records – it was not good enough, for example, to entrust digitisation of war memorial records to an outsourced data transcription company, whose staff did not understand the detail and context of the content.

Similarly, the requirement to integrate data from the National Record of Industrial Monuments index cards into an existing dataset (the National Record of the Historic

[3] Although now (2020) note the Trankribus project, see footnote 1.

Environment) required human intervention to interpret both the card content and existing NRHE records. In this instance, an approach using OCR/HTR was not considered and staff completed the transcription, using the appropriate expertise to interpret data and bring various corroborative sources (existing data, maps, bibliographic sources) to bear on the records. This interpretation is also necessary to recognise the difference between the Hebrew and Aramaic scrips being distinguished by the *Scribes of the Cairo Geniza* project. The variation in content within the sections of Bronze Age Implement Index cards, compared with the British Museum fields designed to capture data to make a new digital dataset from this historic material, also required human interpretation.

Conclusions

The *Sarsen Stones in Wessex* survey record sheets have a number of similarities with the recording sheets and index cards described above. The variability in visual quality of the project's "Tally cards" would make them very difficult to prepare for HTR by the necessary delimitation of specific fields for the software to locate data packets (segmentation), followed by the accurate extraction of characters that comprise the data required (recognition). This is true even for the slightly more regularised "tally card: sarsens JB" version of the record sheets. In far too few instances is the same class of data recorded in the same way, at the same location on the page, for this process to work. Combined with the variability in the content quality, including for example information not to be transcribed (personal data), and data requiring interpretation such as variably-recorded national grid-references (ranging from four- to ten-figure, recorded with and without 100km letter codes), these characteristics mean that manual transcription is the most viable option to digitise data from the "Tally cards".

Methodology and paradata

The *Sarsen Stones in Wessex* item level records – that is the "Tally Cards" in all their various formats – were selected for digitisation. The 311 records for Hampshire could be accessed either at the Society of Antiquaries of London library or through Hampshire County Council (HCC). The original sheets were chosen, and these were photographed during a day visit on 27 June 2017. Transcription was from these photographic images, and the Hampshire set was treated as a pilot exercise in order to identify problems and create protocols governing the transcription process.

The records for the Wiltshire and Dorset datasets had been microfiched by RCHME in 1980. The microfiche is kept by the Historic England Archive in Swindon (UK). As this location was more convenient for repeated visits than the Society of Antiquaries premises in London, the microfiche was used as the transcription source for those two counties. Additionally, this afforded access to uncatalogued RCHME archive material of relevance to the *Sarsen Stones in Wessex* survey, including, unexpectedly, 23 "Tally Cards" for Dorset found in the uncatalogued collection SOA/03: these had neither been microfiched nor returned to the Society of Antiquaries. Transfer of these 23 records to Society of Antiquaries has been arranged, so in anticipation that they will return to MS 953 the appropriate original reference numbers have been used here (Table 3).

SOA/03 File number	**"Tally Card" type**	**Parish (name allocated by survey volunteer)**	**Allocated original reference number**
25	tally card:sarsens	Winterbourne Whitechurch	MS953_2_1_WWH1
25	tally card:sarsens	Milbourne St Andrew	MS953_2_1_MSTA1
25	tally card:sarsens	Milbourne St Andrew	MS953_2_1_MSTA2
25	tally card:sarsens	Bere Regis	MS953_2_1_BR3
25	tally card:sarsens	Charlton Marshall	MS953_2_1_CHM2
25	tally card:sarsens	Charlton Marshall	MS953_2_1_CHM4
25	tally card:sarsens	Winterbourne Kingston	MS953_2_1_WKI1

25	tally card:sarsens	Wimbourne	MS953_2_1_WIM1
25	tally card:sarsens	Wimbourne	MS953_2_1_WIM2
25	tally card:sarsens	Wimbourne	MS953_2_1_WIM4
25	tally card:sarsens	Poole	MS953_2_1_POO2
25	tally card:sarsens	Sturminster Marshall	MS953_2_1_STM3a
25	tally card:sarsens	Sturminster Marshall	MS953_2_1_STM3b
25	tally card:sarsens	Kinson	MS953_2_1_KIN1
25	tally card:sarsens	Colehill	MS953_2_1_COH1
25	tally card:sarsensJB	Bournemouth	MS953_2_1_BTH1
25	tally card:sarsensJB	Bournemouth	MS953_2_1_BTH2
25	tally card:sarsensJB	Bournemouth	MS953_2_1_BTH3
25	tally card:sarsensJB	Bournemouth	MS953_2_1_BTH4
25	tally card:sarsensJB	Bournemouth	MS953_2_1_BTH5
25	tally card:sarsensJB	Bournemouth	MS953_2_1_BTH6
25	tally card:sarsensJB	Bournemouth	MS953_2_1_BTH7
25	tally card:sarsensJB	Corfe Mullen	MS953_2_1_CFM3

TABLE 3 Details of 23 *Sarsen Stones in Wessex* project original “Tally Cards” found in SOA/03 (Historic England Archive), showing the reference number allocated to each record during data digitisation.

It is acknowledged that “how a document is transcribed will depend on the intended audience and purpose of the transcription” (Kearney and Wallis, 2015). Digitising only a subset of the available data, with specific research questions in mind, would have been possible. A disadvantage of this approach is that the collection must be returned to and re-handled when those research questions develop, or if problems arise (problems of understanding and interpretation are especially likely given the complex and heterogeneous nature of the original project records). Furthermore, for a subset of data to be understood in context of the whole population, all the records and their observations are required. Dealing with these eventualities takes up time and affords further risks to the original archive materials.

The extremely heterogeneous nature of the original data makes it possible that future researchers may prefer to return to the original paper records for data to address their own research questions. Nevertheless, it is important to create data, paradata, and metadata in the spirit of Open Science for archaeology (Marwick et al., 2017) and to ensure that future researchers testing or re-using the digitised data can relate the records to the original paper archive held by Society of Antiquaries of London, as well as apply their own editing, data-cleaning, and analytical choices to a master dataset. Therefore, rather than transcribe only a limited number of fields, the general principle applied to all the transcription activity was to capture as much data possible in a master dataset intended for Open Access archiving (aligned with Research Council UK data management requirements for RCUK-funded research, http://www.rcuk.ac.uk/research/datapolicy/).

This decision was additionally influenced by both the Historic England Archive principle 'scan once, use many times' and also by Archaeology Data Service (ADS) principles (http://archaeologydataservice.ac.uk/advice/guidelinesForDepositors.xhtml). Excel was favoured over a text format, such as Microsoft Word, despite the text-heavy nature of the data, for a number of reasons. Excel worksheets can be saved and archived as .csv files which are more adaptable; both .xls(x) and .csv formats are preferred ADS formats; .csv files are usable with many applications (such as GIS) and in a number of programming languages for analysis purposes; and fields can be converted to text files if required for analysis by other digital humanities techniques.

A suite of digitisation protocols, outlined below, were established in the pilot exercise transcribing Hampshire data from the photographed sheets into Microsoft Excel format. These protocols were reviewed prior to transcription of the Dorset and then the Wiltshire data. However, such is the variability within each county dataset, depending on how the project's volunteers contributed their records, that an iterative process was taken. Accordingly, general principles applicable to all three components of the overall dataset were established, to govern the framework of the transcription process. Then, protocols specific to individual fields were established in response to the variation encountered within the archive collection.

On completion, the transcribed records were put through a quality assurance process to improve overall internal consistency in this highly heterogeneous data set (Fig. 4). The final dataset, *WessexSarsens.xlsx*, was then archived.

Whilst these paradata are presented in this document, metadata and paradata relating to the editing of the master dataset for later analytical purposes are archived and presented separately.

The resulting dataset is archived in the University of Reading Data Archive with kind permission of the Society of Antiquaries of London.

Digitisation protocols

The following sections describe the paradata of the transcription process. Various issues were identified when the *Sarsen Stones in Wessex* survey archive was assessed for digitising. These fall into two categories. **General** issues were common across the archived material and include problems about how to capture and present metadata about the records to future users. General principles to manage these issues were established and are outlined in Table 3 below. Specific problems concerned how to split the "Tally Cards" general categories into **individual fields**, and how to capture data in those fields. The issues, and the decisions that were made to solve problems or capture appropriate data/metadata, are outlined below in Table 4. These form the protocols that were followed in capturing data from all the project's archive records for Hampshire, Dorset and Wiltshire, regardless of the format/media in which they had been recorded by volunteers during the project's life. The protocols should be read in association with the metadata tables in file *WessexSarsens.xlsx*.

General

PROBLEM		**SOLUTION**
1	The project's records were made on a variety of "Tally Cards" and other media. This introduced considerable variability for the original volunteers to deal with, and results in variability in the data to be digitised.	Introduce a new field to the digitised dataset to indicate with what type of "Tally Card" or other media the record was made.

2	A number of information categories on each “Tally Card” are often left blank, but there is no indication why. For example, the answer to a question may have been ‘no’ but this was not actively recorded by the volunteer, or the required information may not have been available.	Always leave blank fields blank, rather than (mis)interpret the blank in a way that may not have been intended by the volunteer. Do not use <null> or other indicators in the Master dataset (empty cells can be identified in an analysis dataset, if required, during data cleaning and indicated there with an industry standard indicator such as NAN).
3	“Tally cards” may include more than one hand. It is often not clear who was responsible for which parts of the record, when data were added, or why.	Transcribe all the available text regardless of author.
4	There is considerable variation in the location of text on each “Tally Card”. Sometimes recorded data matched to the required field, but at other times it is scattered over the page. Often data was recorded alongside one field despite looking like the answer to a different field.	The physical constraints of the project’s “Tally Cards” are one of the principal reasons behind the inconsistency of the over-all record. Transcribe data into the field against which the text had been written, unless this makes no sense to later data analysis: for example, always transcribe an NGR to the NGR field, even if written by the volunteer in the Additional Notes field.
5	Occasionally, text written on a “Tally Card” has been crossed through. Reasons for the deletion are not given.	Respect the volunteer’s intention to delete and do not transcribe this data.
6	Occasionally the “Tally Cards” include a sketch. These items cannot be transcribed into a dataset.	Introduce a new field to the digitised dataset to indicate the presence or absence of sketches.
7	Local authority data, when recorded, often pre-dates 1974 and current local authority boundary organisation. Some records were made and kept within one county although they belong to a different county.	Transcribe the county/parish/place-name information as given, and keep records grouped by the county given by volunteers/survey leaders (for example, records for Breamore and Dunbridge, in Hampshire, recorded from a bibliographic source in ‘Wiltshire’ dataset). New fields with present-day CDP data can be added to an edited analysis dataset if required.

8	NGRs were recorded by volunteers to varying degrees of tolerance. They are usually 6-figure and sometimes 8-figure, but can be only 4-figure or up to 10-figure. They often do not include 100km square letter pairs. Sometimes, when compared with other data in the record and OS mapping, the recorded NGRs do not appear to relate well to the described information.	There are numerous ways that recorded NGRs could be incorrect compared with the actual location of the stone(s) being described by the volunteers. It is inappropriate to try to second-guess volunteer intentions or recording accuracy. Transcribe the NGRs as given. New fields with cleaned absolute NGRs can be added to an analysis dataset, including a new field indicating the tolerance of the original NGR. Alternative NGRs may be added, if appropriate and necessary, to any given row, to an edited analysis dataset.
9	Mensuration is usually in Imperial measures that are difficult to analyse in digital formats.	Retain original measurements in the Master dataset. New fields with metric mensuration can be added to an edited analysis dataset if required.
10	Some individual “Tally Cards”, postcards *etc* record not just a single sarsen or one group of sarsens, but groups of stones in more or less close proximity. They thus represent a type of multiple record with only one parish reference number (e.g. in Dorset, PRT6). Other volunteers would have recorded one group per “Tally Card”, allocating a new parish reference number each time (as common in Hampshire). The records thus include data that should map to more than one row in a spreadsheet/database tables and cannot easily be digitised in one aggregated row.	Transcribe data such that one “Tally Card” has one spreadsheet row. If this is not possible, split the record but repeat the *original_ref* allocated by the Sarsen Stones in Wessex project. This will result in some duplicate references in this field, but provides a direct identifying link to the original archive material. Record these split records here: <u>Hampshire</u> MS953/3/2/1/F13h <u>Dorset</u> MS953_3_2_1_PRT6 MS953_3_2_1_PRT7 <u>Wiltshire</u> MS953/4/1/ST93 (Codford, Stockton) MS953/4/1/SU05 (Urchfont)

		MS953/4/1/SU06 (Vale of Pewsey, Avebury Trusloe, Beckhampton, Cherhill, Bishops Cannings) MS953/4/1/SU07 (Berwick Bassett, Cherhill, Yatesbury, Clyffe Pypard, Hilmarton, Winterbourne Bassett, Winterbourne Monkton) MS953/4/1/SU12 MS953/4/1/SU13 MS953/4/1/SU14 (Durrington, Bulford, Amesbury, Figheldean) MS953/4/1/SU14/78 (Amesbury) MS953/4/1/SU15/18, 19, 21, 22, 23 (Charlton) MS953/4/1/SU15/9, 12 (Wilsford) MS953/4/1/SU15/30 (Pewsey) MS953/4/1/SU16/75 (Alton) MS953/4/1/SU16/88 (Milton Lilbourne) MS953/4/1/SU16/155 (Fyfield) MS953/4/1/SU16/84 (Wootton Rivers) MS953/4/1/SU16/82, 92 (Wilcot; Draycot, Oare) MS953/4/1/SU17/163 (Chiseldon) MS953/4/1/SU18 (Chiseldon, Swindon, Wroughton, South Marston) MS953/4/1/SU16/102 (Woodborough) MS953/4/1/SU26/213 (Mildenhall) MS953/4/1/SU27 (Wanborough; Popplechurch) MS953/4/1/SU27/235 (Baydon) MS953/4/1/SU28 (Bishopstone/Wanborough) MS953/4/1/SU28/246 (Bishopstone; Hinton Parva) Allocate a new unique identifier field in an edited analysis dataset.

11	“Tally Card” categories include main questions and sub-questions, or required more than one separate items of information to be captured together (for example, “Shape and Size”).	Split out individual fields. See Table 4.
12	The “Tally Card” category ‘Group’ [of sarsens] was often used by volunteers to indicate a number of stones in individual buildings (e.g. walls, foundations). This is an awkward use of the category more intended for spreads or scatters of stones, and often does not include a count of how many in the ‘group’.	Create a new category ‘building’, with number of stones ‘1’, to distinguish between the volunteers’ use of the recording categories ‘single’ and ‘group’. This new category can therefore be symbolised effectively in GIS visualisations and identified in general summaries of the overall project results.
13	Fields in the Master dataset must be based on the maximum range of categories in the “Tally Cards”, but the variety in versions of “Tally Cards” mean that some fields were not available to some of the recorders. Nevertheless, some volunteers realised this and included relevant data on their sheets, commonly written in blank space on the page.	Transcribe data from shorter “Tally Cards” and other media into the relevant matched field. If notes are not a clear match, transcribe information about sarsen fabric to the ‘other comments’ field; and other information to the ‘additional notes’ field.
14	Occasionally personal data other than the volunteer’s name was recorded, e.g. property owner and address, telephone numbers.	Do not transcribe personal data other than name. Only include property name/address (without owner) if this is the location information for the record.
15	Occasionally “Tally Cards” include text including speculation and reasoning explaining a sarsen’s location/use.	Transcribe all data. This is relevant to the context and framing of the project, and may be amenable to textual analysis methods.
16	Transcription into a spreadsheet is not the best way to handle lengthy text elements. The variability of volunteers’ recording on the page means that some text elements from different locations need to be transcribed to the same spreadsheet field. However, cells should contain only one data point.	Divide text elements sharing a cell with [;] (see Micropasts precedent). This will enable text elements to be split into separate columns in an analysis dataset if required.

17	Difference in the layout of the main “Tally Cards” used by the volunteers resulted in some classes of data being recorded on one area of a page in one county, but under a different heading in another county. In transcription, this means that the same classes of data may be put into different fields.	The physical constraints of the project’s “Tally Cards” are one of the principal reasons behind the inconsistency of the over-all record. Transcribe data into the field against which the text had been written, unless this makes no sense: for example, always transcribe an NGR to the NGR field, even if written by the volunteer in the Additional Notes field (see **[4]** above).
18	Some “Tally Cards” are duplicate records, where a volunteer submitted both interim and final sheets, or a final sheet with additional paperwork.	Where it is clear that there are duplicate records, combine data from the parallel sheets into one record identified by the project reference number for the uid. Record these here: <u>Hampshire</u> “Bydean” to Froxfield F13h as for Woodmancote
19	Some sarsens were recorded more than once, by different volunteers. There are thus two “Tally cards” with one reference number i.e. duplicate records but, unlike **[18]**, were created by different authors.	Where it is clear that there are duplicate records for the same reference number, combine data from the duplicate sheets into one record identified by that project reference number. Include the second author name in column ‘name02’ or ‘name03’ as appropriate. Record these here: <u>Dorset</u> MLH1 PDT3 PDT6 TUP1 <u>Wiltshire</u> MS953/4/1/SU06/106 MS953/4/1/SU13 (Amesbury, Durrington) MS953/4/1/SU14 (Fittleton; Haxton Down) MS953/4/1/SU18 (Wanborough)

		MS953/4/1/SU25 (Collingbourne Kingston; Fittleton) MS953/4/1/SU25 (Collingbourne Kingston; Fairmile Down, Collingbourne Ducis) MS953/4/1/SU25/208
20	Some text is illegible.	Indicate illegible text with […] (see Micropasts precedent).

Table 4 General issues arising from volunteer recording practices for the *Sarsen Stones of Wessex* survey.

Individual fields

The most frequent, and most extensive, of the *Sarsen Stones in Wessex* printed volunteer recording sheets were those identified here as “Revised 5/74” and “tally card: sarsensJB”. These versions included the greatest number of categories of information to be captured by the project volunteers and thus form the basis of the transcribed fields. The table below outlines how the categories were split into fields, and decisions made about which data to transcribe into these fields. It should be read in conjunction with the metadata tables in file *WessexSarsens.xlsx*.

	“Tally card” category	**FIELD NAME**	**PROTOCOL**	**FORMAT/allowed terms** (null cells allowed unless indicated otherwise)
1	[null]	original_ref	Reference numbers were allocated to Hampshire and Dorset “Tally Cards” during the *Sarsen Stones in Wessex* project. The Wiltshire records were collated in numerical sequence by each OS 1:25000 map sheet covering the county (e.g. SU35) with some, but not all, records additionally given a running number suffix. Records may have been placed in incorrect parishes or map-sheet groups. In archive terms these references are analogous to	e.g. <MS953_3_2_1_A2a> <MS953_2_1_WTA3> <MS953_4_1_SU35> <MS953_4_1_SU35_255> <no_reference>

			ISAD(G) item level references, although they are not necessarily unique identifiers. Use the Society of Antiquaries' collection, fonds, and series references with the allocated reference number to create an identifier for each data row. Any records without a reference, use <no_reference>.	
2	[null]	card_type	Indicate the type of "Tally card" on which the data was recorded	<revised5_74> <tallycard_sarsens> <handmade> <tallycard_sarsensJB> <postcard> <other>
3	County (Old/New)	county	Indicate which of the three counties the data is from. This location data relates to the dataset as organised by the volunteers and survey leaders, not necessarily the actual (old or present-day) administrative area boundaries. This means that records may be grouped into a county despite falling outside that county boundary.	<Hampshire> <Wiltshire> <Dorset>

4	Parish	parish	The parish name as identified by the volunteer.	transcribe the name
5	[null]	place_name	Occasionally a volunteer recorded a place-name in addition to a parish name. If a place was identified, transcribe this additional data.	transcribe the name
6	Utilised/Not Utilised	utilised_notutilised	Volunteers were required to indicate by deletion whether or not a sarsen had been used for something: record which phrase was not deleted. Sometimes neither phrase was deleted: if the record makes it clear, choose the appropriate phrase; otherwise, leave blank. Leave blank in records made on other “Tally card” versions that did not ask the question.	<utilised> <not_utilised>
7	1. Group or single	group_single	Record which word, if either, was selected by the volunteer. Where a building was recorded as ‘group’, or an artefact as ‘single’, use the appropriate new term.	<group> <single> <building> <artefact> this cell cannot be null

8	[null]	number	The number of sarsens in a group was not a required field on the “Tally cards” but volunteers made counts. Record the number in the count. If [7] = <building> use ‘1’. If [7] = an uncounted/innumerable group use ‘99’.	A numerical value: this cell cannot be null
9	Whether in situ (reason if not?)	in_situ	A text comment about the location, disposition, and use of the sarsen(s), often restricted to a Yes/No answer but sometimes more extensive or descriptive. Transcribe this information.	transcribe the text
10	2. Any name (block letters)	name	This appears to have been intended to capture folk names by which stones were known, but was most commonly used by volunteers to capture address elements describing a sarsen’s location. See [14] in Table 1: transcribe location information but not personal data.	transcribe the text

11	3. Position: to be marked on map and elaborated in diagram, overleaf	position	Commonly text describing an address or general location, but including descriptions and sketches. Use field **42** to indicate the presence of a sketch.	transcribe the text
12	NGR	NGR	National grid references, recorded to varying tolerances and accuracy, with often more than one NGR when groups of sarsens were being described (see [8] in Table 1 above). Transcribe NGRs as given, separate multiple NGRs with [;]	transcribe the text
13	Bedrock	bedrock	If recorded, a rock type, selected by the volunteer. Transcribe the text and do not correct to current BGS record for the location.	transcribe the text
12	Drift	drift	If recorded, a superficial deposit type, selected by the volunteer. Transcribe the text and do not correct to current BGS record for the location.	transcribe the text
13	Height above OD	height_OD	If recorded, a value given in feet or metres. Transcribe the information given and do not correct against OS mapping.	A numerical value

14	Situation (e.g. hill-top, valley; hedgerow, road verge; incorporated in wall or building etc)	situation	A textual description of the topographical situation of the recorded sarsen, but encompassing aspects of location and use. This was commonly used for further or duplicate location/address information. Transcribe the information given.	transcribe the text
15	Description: (i) type of rock	rock_type	Occasionally volunteers used a geological term to indicate a specific rock type for the recorded sarsen. If given, record the term in this field.	<puddingstone> <sarsen> <sandstone> and other rock-types allowed
16	(a) only sand grains visible	only_sand	This was probably meant to be a Yes/No record. It was little used by the volunteers and sometimes is no more than a tick. For a tick, use 'yes'. Transcribe any other text.	<yes> and other text allowed
17	(b) also contains small pink or white quartz pebbles: angular or rounded:	quartz_pebbles	An interest in the presence of quartz pebbles in sarsens seems to have come from Geoffrey Kellaway's interest in the project (see e.g. Society of Antiquaries of London, 1975). Volunteers were asked to look for quartz pebbles in the rock. This was rarely completed. For a tick,	<yes> <no> and other text allowed

			use ‘yes’. Transcribe any other text.	
18		quartz_form	Along with the presence of quartz volunteers were asked to indicate pebble form, presumably to inform Kellaway’s interpretation of southern British glaciation and sarsen formation processes. Transcribe the text. If this form descriptor is completed even though the volunteer did not indicate ‘yes’ for quartz presence [17], add ‘yes’ to [17].	<angular> <rounded> and other text allowed
19	(c) contains flint pebbles: angular or shattered or rounded: colour of pebbles:	flint_pebbles	Volunteers were asked to look for flint pebbles in the rock. This was rarely completed. For a tick, use ‘yes’. Transcribe any other text.	<yes> <no> and other text allowed
20		flint_form	Volunteers were asked to indicate flint form. Transcribe the text. If this form descriptor is completed even though the volunteer did not indicate ‘yes’ for flint presence in [19], add ‘yes’ to [19].	<angular> <shattered> <rounded> and other text allowed
21		flint_colour	Transcribe the text, if used.	transcribe the text

22	(d) other comments	other_comments	Volunteers could add extra notes about the rock being recorded. Transcribe the text, if used. Use this field to capture information on the nature of the rock that have been written out of position on the “Tally card”.	transcribe the text
23	(ii) size and shape (noting if over 6ft long, with sketch, overleaf; for a group, note size of largest)	size01	This was interpreted in a number of different ways by volunteers. Use this field to capture simple text descriptors (adjectives).	<small> <medium> <large> <boulder> and other text allowed
24		size02	This apparently simple category of information was interpreted in a number of different ways by volunteers. Use this field to capture metric dimensions, and other complex textual comments about size (for example, where groups are described).	transcribe the text
25		L	Sometimes volunteers recorded, or estimated, sarsen size. This is usually an Imperial measurement. Record the longest measurement, in inches.	A numerical value in inches
26		I	Sometimes volunteers recorded, or estimated, sarsen size. This is usually an Imperial measurement.	A numerical value in inches

			Record the intermediate measurement, in inches.	
27		S	Sometimes volunteers recorded, or estimated, sarsen size. This is usually an Imperial measurement. Record the shortest measurement, in inches.	A numerical value in inches
28		shape	Various terms were used to define shape. Transcribe the text, if used.	transcribe the text
29	(iii) if group, density	group_density	This information was very rarely recorded. The category was occasionally used to record how many sarsens were present in a group, but not a ratio of stones/area. Transcribe the text, if used. If a numerical value was recorded here describing a group, transfer the number to field [8].	transcribe the text
30	(iv) conditions (e.g. apparent nature of bedding; weathering of surface; covered with algae etc)	conditions	This category was interpreted in a number of different ways by volunteers, and not often used. Transcribe the text, if used.	transcribe the text
31	(v) evidence for use, splitting, smoothing, etc	use_evidence	This category appears to have been targeted towards identifying any prehistoric evidence for sarsen-working	transcribe the text

			beyond Stonehenge, but was not explained. Hence, volunteers tended to use it to indicate any possible signs of splitting. Although rarely used, information in this category sometimes contradicts the volunteer's use of [6]. Transcribe the text, if used.	
32	(vi) relationship (e.g. to fields, ancient or modern)	relationship	Intended to record any physical relationship, this category was rarely used, or duplicated/augmented address data. Transcribe the text, if used.	transcribe the text
33	5. Air photographs consulted	air_photos	This category was very rarely used. Transcribe any image reference numbers given. If ticked, use 'yes'.	<yes> and other text allowed
34	Photographs taken	photographs	Few images seem to have been taken overall by the volunteers and this category was used very variably. If ticked, use 'yes'. If a list of photographs was noted, use 'yes'. Transcribe other text, for example, image reference numbers, if used.	<yes> and other text allowed

35	6. Additional notes	additional_notes	This is a very heavily used category, with a multiplicity of information captured by the volunteers including opinion and surmise, bibliographic references and quotations, excavation data, more detailed descriptions and sketches etc. Transcribe the text, if used. Use this field for other information written onto the “Tally card” that is not clearly attached to another category (e.g. notes on card reverse).	transcribe the text
36	7. Name of recorder (printed)[4]	name01	The recorder name was not always noted. Transcribe the name noted here.	<surname> <initial_surname> <initial_initial_surname>… <organisation acronym>
37		name02	Sometimes volunteers worked together to make a record. Transcribe the second name here.	<surname> <initial_surname> <initial_initial_surname>…

[4] Redacted from the archived dataset in compliance with GDPR.

38		Name03	Sometimes volunteers worked together to make a record. Transcribe the third name here.	<surname> <initial_surname> <initial_initial_surname>…
39	[null]	data_source	Volunteers made site visits, but also captured data from other sources. Where it is clear from the “Tally card”, indicate the source here. Use ‘knowledge’ when the volunteer was recording their reminiscence or local historical information. Leave blank if uncertain. Although this involves making some assumptions, it is useful when making a broad assessment of the course of the project.	<visit> <bibliographic> <perscomm> <knowledge>

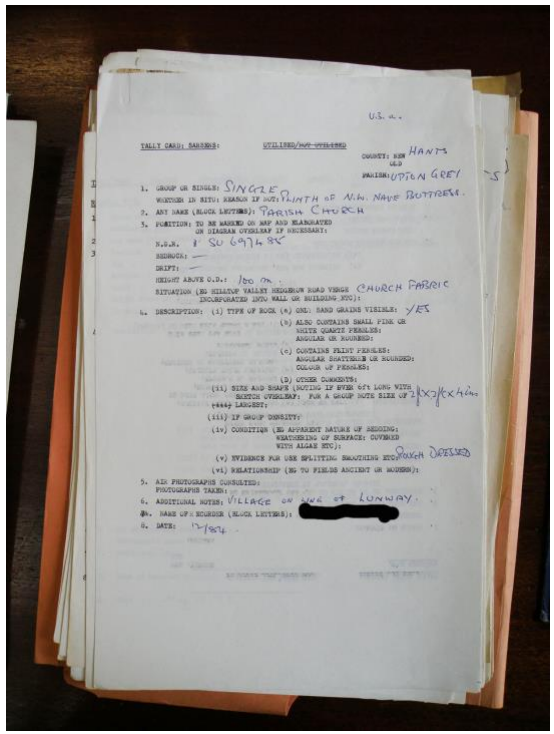
40	8. Date	date	The date that the record was made was not always noted, and if recorded is commonly month and year only. Whilst date should be recorded in a spreadsheet with its elements in separate columns, this Master dataset collates date and allocated a date-flag (because of this variability). Record date in the appropriate date format and use field [40] to indicate tolerance.	<DD/MM/YYY> <MM/YYYY> <YYYY>
41		date_qualifier	A date flag indicating the tolerance of the date recorded by the volunteer.	<1> = DD/MM/YYYY <2> = MM/YYYY <3> = YYYY <4> = no date recorded this cell cannot be null

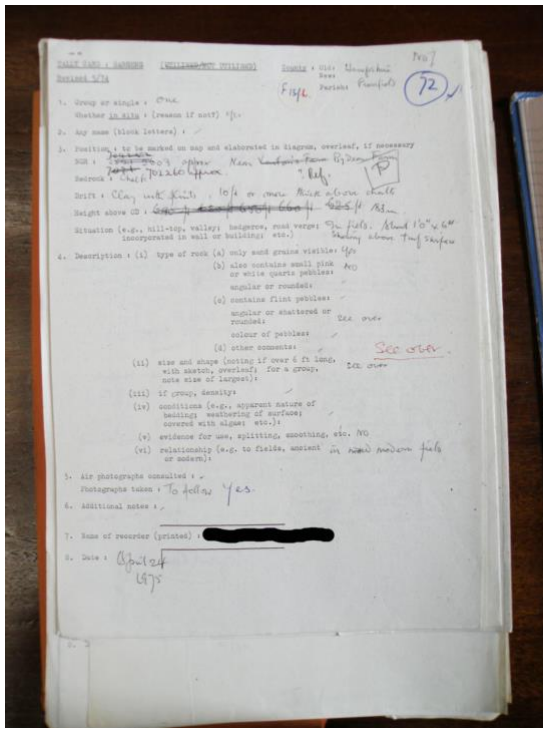
42	[null]	Extant	At the time of the record, was the sarsen(s) extant? Whilst not part of the original record, this new field is intended to be a quick way to indicate how many records related to extant stones, as opposed to records derived from reminiscence or e.g. charters, useful when making a broad assessment of the course of the project. For the few examples where the "Tally card" does not include enough information to know, leave blank.	<yes> <no>
43	[null]	sketch	Often volunteers drew sketches of boulders, or maps. Indicate whether or not the record includes a sketch.	<yes> <no> this cell cannot be null

Table 5 *Sarsen Stones of Wessex* "Tally card" data categories mapped to fields in *WessexSarsens.xlsx*, field description, protocol for completion, and permitted field content.

Figures

Figure 1 Examples of *Sarsen Stones in Wessex* survey "Tally Cards" (by permission, Society of Antiquaries of London)





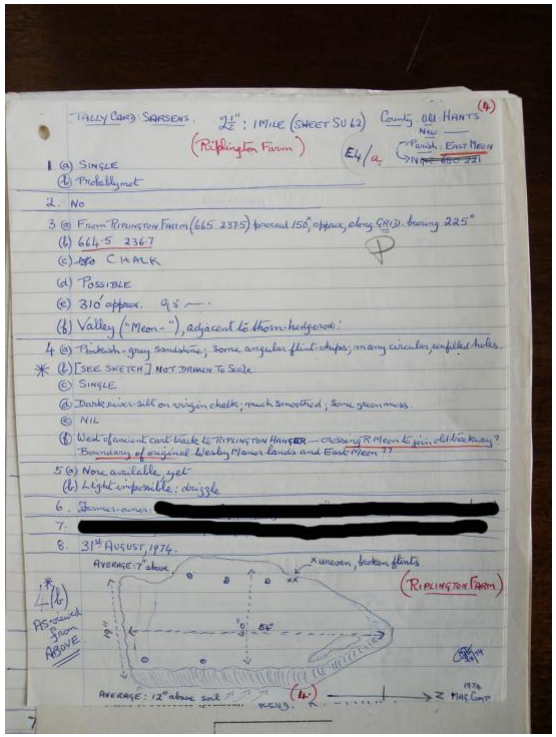
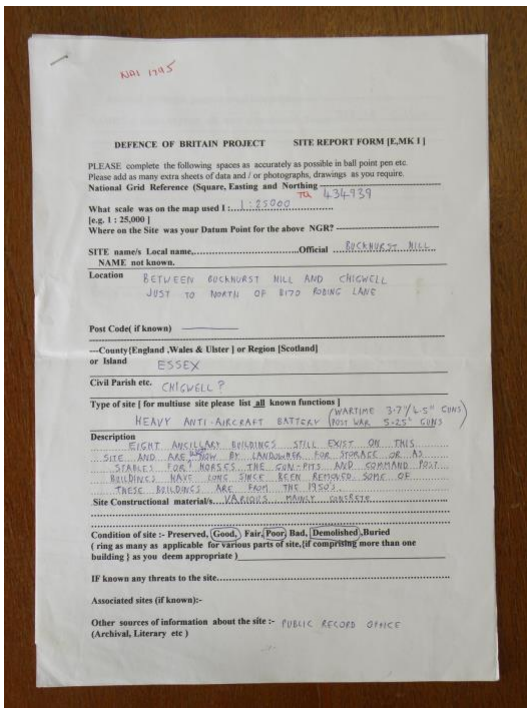


Figure 2 Defence of Britain project record sheets (Historic England Archive)



DEFENCE OF BRITAIN PROJECT SITE REPORT FORM [E,MK I]

PLEASE complete the following spaces as accurately as possible in ball point pen etc.
Please add as many extra sheets of data and / or photographs, drawings as you require.

National Grid Reference (Square, Easting and Northing – TQ 434939

What scale was on the map used I :...1 : 25000...
[e.g. 1 : 25,000]
Where on the Site was your Datum Point for the above NGR? –

SITE name/s Local name,.....Official ...BUCKHURST HILL...
NAME not known.

Location BETWEEN BUCKHURST HILL AND CHIGWELL
JUST TO NORTH OF A113 ROADING LANE

Post Code(if known) –

---County (England ,Wales & Ulster] or Region [Scotland]
or Island ESSEX

Civil Parish etc. CHIGWELL ?

Type of site [for multiuse site please list all known functions]
HEAVY ANTI-AIRCRAFT BATTERY (WARTIME 3.7"/4.5" GUNS POST WAR 5.25" GUNS)

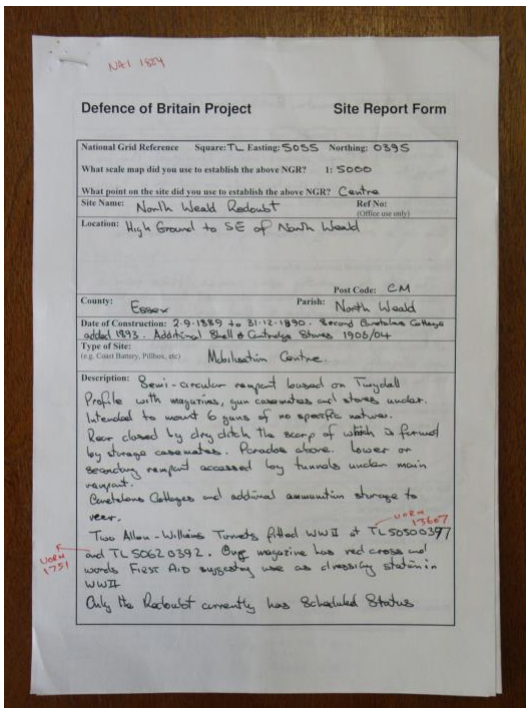
Description
EIGHT ANCILLARY BUILDINGS STILL EXIST ON THIS SITE AND ARE NOW BY LANDOWNER FOR STORAGE OR AS STABLES FOR HORSES. THE GUN-PITS AND COMMAND POST BUILDINGS HAVE LONG SINCE BEEN REMOVED. SOME OF THESE BUILDINGS ARE FROM THE 1950's.
Site Constructional material/s....VARIOUS MAINLY CONCRETE

Condition of site :- Preserved, (Good,) Fair, (Poor) Bad, (Demolished),Buried
(ring as many as applicable for various parts of site, [if comprising more than one building] as you deem appropriate)

IF known any threats to the site.....

Associated sites (if known):-

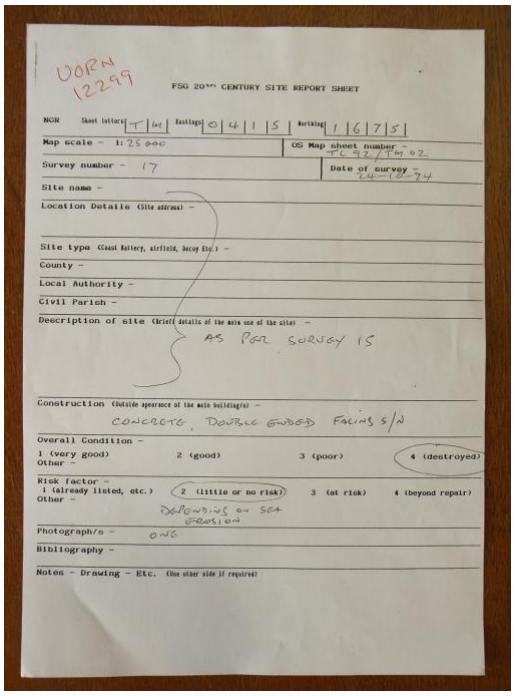
Other sources of information about the site :- PUBLIC RECORD OFFICE
(Archival, Literary etc)



Defence of Britain Project Site Report Form

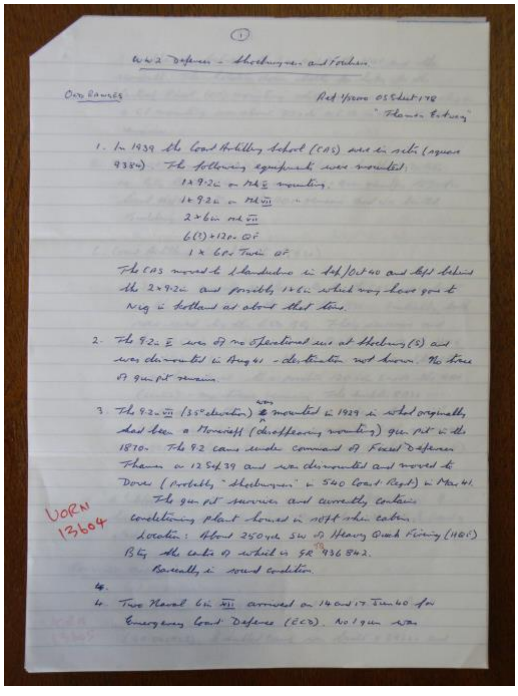
National Grid Reference Square: TL Easting: 5055 Northing: 0395
What scale map did you use to establish the above NGR? 1: 5000
What point on the site did you use to establish the above NGR? Centre
Site Name: North Weald Redoubt Ref No: (Office use only)
Location: High Ground to SE of North Weald
Post Code: CM
County: Essex Parish: North Weald
Date of Construction: 2-9-1939 to 31-12-1940. Second Australian Cottage added 1993. Additional Shell & Cartridge Stores 1900/04
Type of Site: (e.g. Coast Battery, Pillbox, etc) Mobilisation Centre.

Description: Semi-circular rampart located on Turgdall Profile with magazines, gun casemates and stores under. Intended to mount 6 guns of no specific nature. Rear closed by dry ditch, the scarp of which is formed by storage casemates. Parados above. Lower or secondary rampart accessed by tunnels under main rampart.
Casemates Cottages and additional ammunition storage to rear.
Two Allen-Williams Turrets fitted WWII at TL 50500397 and TL 50620392. Bug magazine has red cross and words First Aid suggesting use as dressing station in WWII
Only the Redoubt currently has Scheduled Status



FSG 20TH CENTURY SITE REPORT SHEET

NGR Sheet letters TL Eastings 0415 Northings 1675
Map scale – 1: 25 000 OS Map sheet number – TL 90 / TM 09
Survey number – 17 Date of survey – 2.4-10-74
Site name –
Location Details (Site address) –
Site type (Coast Battery, airfield, Decoy Etc.) –
County –
Local Authority –
Civil Parish –
Description of site (Brief details of the main use of the site) – AS PSR SURVEY IS
Construction (Outside appearance of the main building(s)) – CONCRETE, DOUBLE ENDED FACING S/N
Overall Condition –
1 (very good) 2 (good) 3 (poor) 4 (destroyed)
Other –
Risk factor –
1 (already listed, etc.) 2 (little or no risk) 3 (at risk) 4 (beyond repair)
Other – DROWNING BY SEA EROSION
Photograph/s – ONB
Bibliography –
Notes – Drawing – Etc. (Use other side if required)



WW2 Defences – Shotbury and Foulness

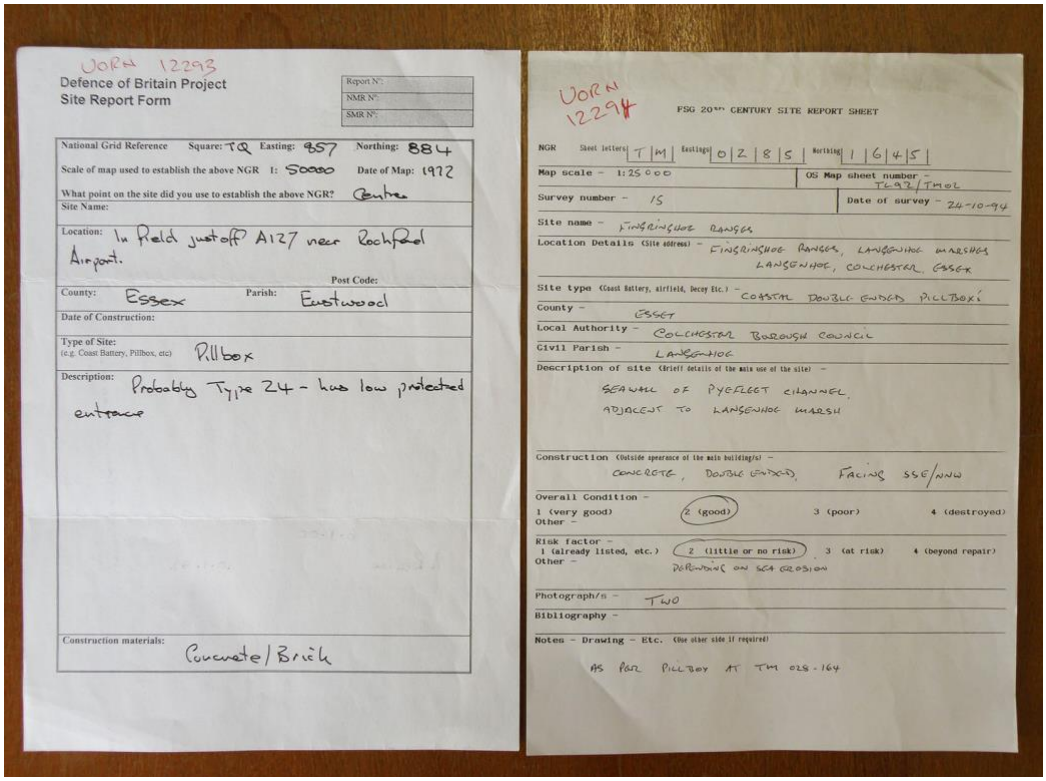
Chris Barnes Red Visors OS Sheet 178 "Thames Estuary"

1. In 1939 the Coast Artillery School (CAS) was in situ (square 9384). The following equipment was recorded:
1 x 9.2in on MkE mounting
1 x 9.2in on MkVIII
2 x 6in on MkVII
6(?) x 12pdr QF
1 x 6pr Twin QF
The CAS moved to Shoeburyness in Sept/Oct 40 and Sept defined the 2 x 9.2in and possibly 1 x 6in which may have gone to Nigg in Scotland at about that time.

2. The 9.2in E was of no operational use at Shoeburyness (S) and was dismounted in Aug 41 – destination not known. No trace of gun pit remains.

3. The 9.2in MkVIII (35° elevation) was mounted in 1939 in what originally had been a Moncrieff (disappearing mounting) gun pit in the 1870's. The 92 came under command of Fixed Defences Thames on 12 Sept 39 and was dismounted and moved to Dover (Probably "Shellmouth" in 540 Coast Regt) in Mar 41.
The gun pit survives and currently contains weathering plant housed in 1944 style cabin.
Location: About 250 yds SW of Heavy Quick Firing (HQF) Battery. The centre of which is at SR 936842.
Basically in sound condition.

4. Two Naval 6in MkVII arrived on 14 and 17 Jun 40 for Emergency Coast Defence (ECD). No 1 gun was



VORN 12293

Defence of Britain Project
Site Report Form

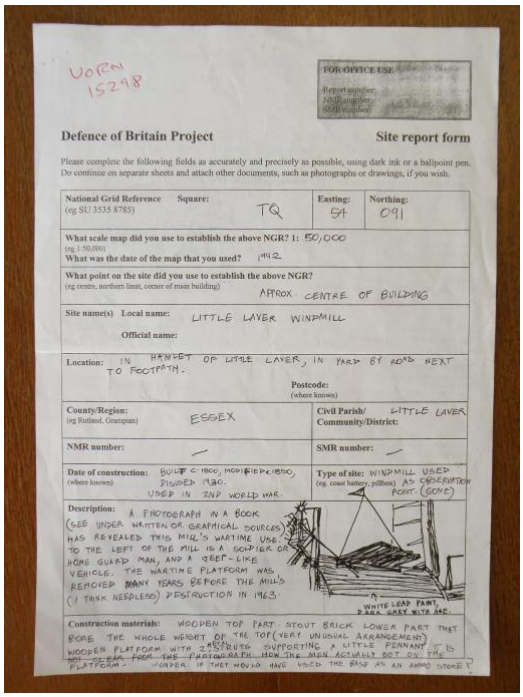
Report N°:
NMR N°:
SMR N°:

National Grid Reference Square: TQ Easting: 957 Northing: 884
Scale of map used to establish the above NGR 1: 50000 Date of Map: 1972
What point on the site did you use to establish the above NGR? Centre
Site Name:
Location: In field just off A127 near Rochford Airport.
Post Code:
County: Essex Parish: Eastwood
Date of Construction:
Type of Site: (e.g. Coast Battery, Pillbox, etc) Pillbox
Description: Probably Type 24 - has low protected entrance
Construction materials: Concrete/Brick

VORN 12294

FSG 20TH CENTURY SITE REPORT SHEET

NGR Sheet letters TM Eastings 0285 Northings 1645
Map scale - 1:25000 OS Map sheet number - TG97/TM02
Survey number - 15 Date of survey - 24-10-94
Site name - FINGRINGHOE RANGES
Location Details (Site address) - FINGRINGHOE RANGES, LANGENHOE MARSHES LANGENHOE, COLCHESTER, ESSEX
Site type (Coast Battery, Airfield, Decoy Etc.) - COASTAL DOUBLE ENDED PILLBOX
County - ESSEX
Local Authority - COLCHESTER BOROUGH COUNCIL
Civil Parish - LANGENHOE
Description of site (Brief details of the main use of the site) -
SEAWALL OF PYEFLEET CHANNEL ADJACENT TO LANGENHOE MARSH
Construction (Outside appearance of the main building/s) -
CONCRETE, DOUBLE ENDED FACING SSE/NNW
Overall Condition -
1 (very good) 2 (good) 3 (poor) 4 (destroyed)
Other -
Risk factor -
1 (already listed, etc.) 2 (little or no risk) 3 (at risk) 4 (beyond repair)
Other - DEPENDENT ON SEA EROSION
Photograph/s - TWO
Bibliography -
Notes - Drawing - Etc. (Use other side if required)
AS PER PILLBOX AT TM 028-164



VORN 15298

FOR OFFICE USE
Report number:
NMR number:
SMR number:

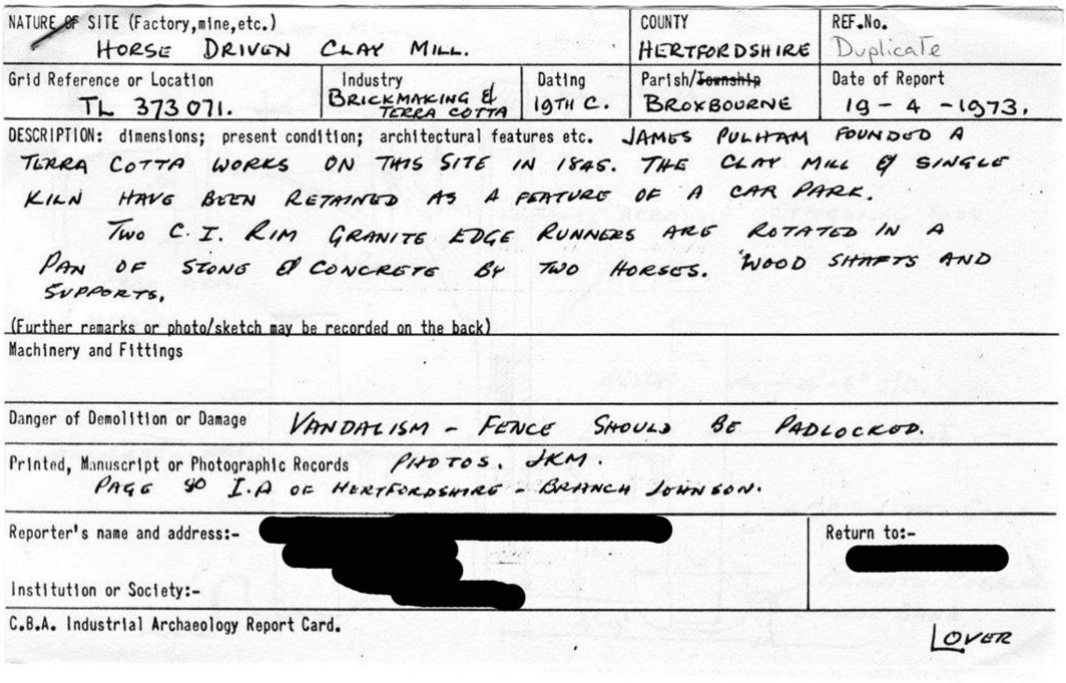
Defence of Britain Project — Site report form

Please complete the following fields as accurately and precisely as possible, using dark ink or a ballpoint pen. Do continue on separate sheets and attach other documents, such as photographs or drawings, if you wish.

National Grid Reference Square: (eg SU 3535 8785) TQ Easting: 54 Northing: 091
What scale map did you use to establish the above NGR? 1: 50,000 (eg 1:50,000)
What was the date of the map that you used? 1962
What point on the site did you use to establish the above NGR? (eg centre, northern limit, corner of main building) APPROX CENTRE OF BUILDING
Site name(s) Local name: LITTLE LAVER WINDMILL
Official name:
Location: IN HAMLET OF LITTLE LAVER, IN YARD BY ROAD NEXT TO FOOTPATH.
Postcode: (where known)
County/Region: (eg Rutland, Grampian) ESSEX
Civil Parish/ Community/District: LITTLE LAVER
NMR number: —
SMR number: —
Date of construction: (where known) BUILT C 1800, MODIFIED C 1850, DISUSED 1930. USED IN 2ND WORLD WAR.
Type of site: (eg coast battery, pillbox) WINDMILL USED AS OBSERVATION POST. (GONE)
Description: A PHOTOGRAPH IN A BOOK (SEE UNDER WRITTEN OR GRAPHICAL SOURCES) HAS REVEALED THIS MILL'S WARTIME USE. TO THE LEFT OF THE MILL IS A SOLDIER OR HOME GUARD MAN, AND A JEEP-LIKE VEHICLE. THE WARTIME PLATFORM WAS REMOVED MANY YEARS BEFORE THE MILL'S (I THINK NEEDLESS) DESTRUCTION IN 1963.

Construction materials: WOODEN TOP PART STOUT BRICK LOWER PART THAT BORE THE WHOLE WEIGHT OF THE TOP (VERY UNUSUAL ARRANGEMENT) WOODEN PLATFORM WITH 2 BEAMS BUTTRESS SUPPORTING A LITTLE PENNANT IT IS NOT CLEAR FROM THE PHOTOGRAPH HOW THE MEN ACTUALLY SAT ON THE PLATFORM - WONDER IF THEY WOULD HAVE USED THE MILL AS AN AMMO STORE ?

Figure 3 National Record of Industrial Monuments Record card (Historic England Archive)



NATURE OF SITE (Factory, mine, etc.): HORSE DRIVEN CLAY MILL.
COUNTY: HERTFORDSHIRE
REF.No.: Duplicate
Grid Reference or Location: TL 373 071.
Industry: BRICKMAKING & TERRA COTTA
Dating: 19TH C.
Parish/~~Township~~: BROXBOURNE
Date of Report: 19 - 4 - 1973.

DESCRIPTION: dimensions; present condition; architectural features etc. JAMES PULHAM FOUNDED A TERRA COTTA WORKS ON THIS SITE IN 1845. THE CLAY MILL & SINGLE KILN HAVE BEEN RETAINED AS A FEATURE OF A CAR PARK.
TWO C.I. RIM GRANITE EDGE RUNNERS ARE ROTATED IN A PAN OF STONE & CONCRETE BY TWO HORSES. WOOD SHAFTS AND SUPPORTS.

(Further remarks or photo/sketch may be recorded on the back)
Machinery and Fittings

Danger of Demolition or Damage: VANDALISM - FENCE SHOULD BE PADLOCKED.

Printed, Manuscript or Photographic Records: PHOTOS. JRM.
PAGE 90 I.A OF HERTFORDSHIRE - BRANCH JOHNSON.

Reporter's name and address:- [redacted]
Institution or Society:-

Return to:- [redacted]

C.B.A. Industrial Archaeology Report Card.

LOVER

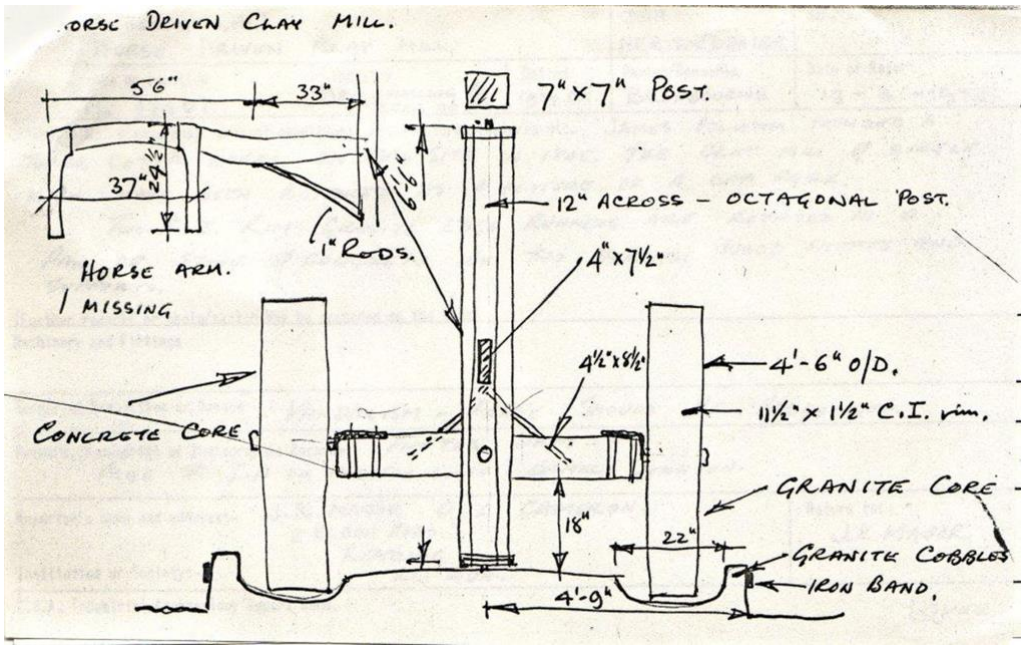
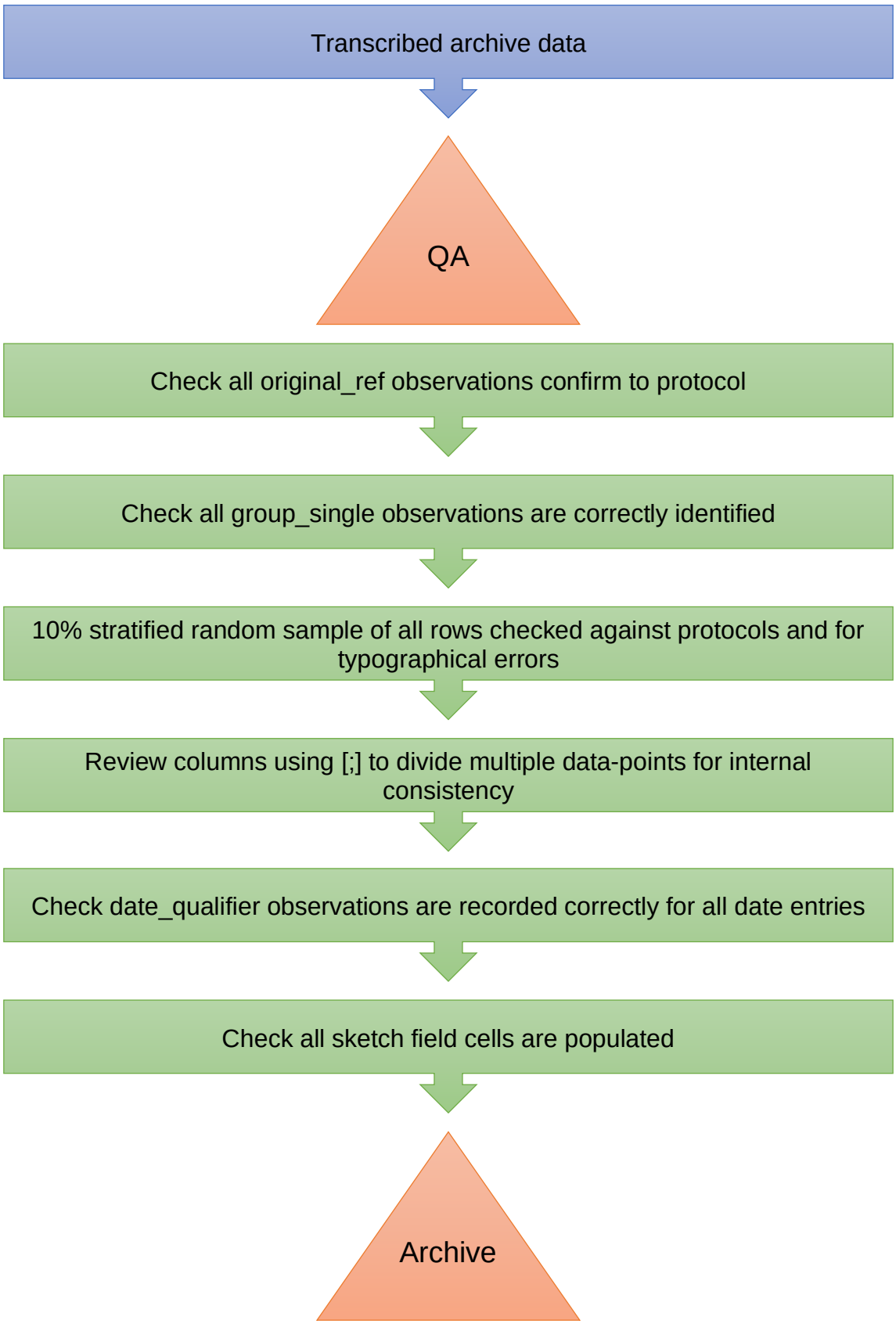


Figure 4 Quality assurance chart



References

AHMED, R., AL-KHATIB, W. G. & MAHMOUD, S. 2017. A Survey on Handwritten Documents Word Spotting. *International Journal of Multimedia Information Retrieval,* 6**,** 31-47.

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